

Office Action Summary

Application No.

10/780,471

Applicant(s)

MOHINDRA ET AL.

Examiner

Kamran Afshar, 571-272-7796

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2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-7 and 10-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 10-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 4-7, 10-26 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant argument, the Terminal Disclaimer (TD) submitted on 05/29/2007, overcoming the obvious-type double patenting rejection was indicated disapproved since the person who signed the TD is not an attorney "of record". Therefore, Examiner holds the previous rejection as repeated below.

Claim Rejections - 35 USC § 112

2. Claims, 1, 4-7, 10-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1, 7, 13, 15, 20, and 25, the closest section was found in the specification, i.e., (Page 4, Lines 8-9, Page 18-25), merely teaches "the in-phase signal component and the quadrature signal component contribute to the sum used to form the RSSI indication but fails to teach the in-phase signal component and the quadrature signal component contribute to the sum used to form the RSSI indication **in equal proportion**" as recited in the independent claims.

Claims 4-6, 10-12, 14, 16-19, 21-24 and 26 are rejected as they are directly and or indirectly depended on rejected claim(s).

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226

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(Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 4-7, 10-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,721,548. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both basically claim the same subject matter which includes: 1) A received signal strength indicator for use in radio device with an antenna for receiving a radio frequency signal / A radio device comprising: an antenna for receiving a radio frequency signal / A method of determining a received signal strength indicator signal from an in-phase signal component and a quadrature signal component of a low intermediate frequency signal that represents a received radio frequency signal, 2) determining a first absolute value from said in-phase signal component; 3) determining a second absolute value from said quadrature signal component; 4) and summing said first and second absolute values, 5) A radio device comprising: an antenna for receiving a radio frequency signal.

"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. *In re Longi*, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); *In re Berg*, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). " *ELI LILLY AND COMPANY v BARR LABORATORIES, INC.*, United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato (U.S. Patent 5,603,112) in view of Bodtmann (U.S. Patent 4,028,641).

With respect to claims 1, 15, Gabato discloses a prior art (See Fig. 2) which teaches a method of determining received signal strength indicator (RSSI) signal from an in-phase (I) signal component and a quadrature (Q) signal component (See Gabato e.g. I, Q, 201, 203, 205 of Fig. 2) that are (inherently) a low intermediate frequency (IF) signal that represents a received radio frequency signal, first determines an absolute value from in-phase (I) signal component (See Gabato 201 of fig. 2); and second determines an absolute value from quadrature (Q) signal component (See Gabato e.g. 203, of fig. 1); and forming a sum of the absolute values (See Gabato e.g. 205 of fig.1, Co. 1, Lines 23-38) and or performing a limiting operation to obtain a limited in-phase signal component and a limited quadrature signal component (See Gabato e.g. as defined logarithmically processing I and Q, Co. 1, Lines 21-27). Further, With respect to Fig. 3, Gabato discloses that the determined absolute value in-phase (I) signal component and determined an absolute value of quadrature (Q) signal component compared and added / summed after to output absolute value of (RSSI) (See Gabato e.g. Co. 1, Lines 21-27, Co. 2, Lines 45-59 & fig.3). However, Gabato does not disclose the (or limited) in-phase signal component and the (or limited) quadrature signal component contribute to the sum used to form the RSSI indication in equal proportion. In an analogous field of endeavor, Bodtmann teaches that the (or limited) in-phase signal component and the (or limited) quadrature signal component contribute to the sum in equal proportion (See Bodtmann e.g. Co. 1, lines 54-56). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching of Bodtmann to Gabato to provide a method or

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system or configuration for eliminating even order nonlinearities wherein carriers are added which differ in phase from quadrature from the modulating carrier signal by equal and opposite amounts as suggested (See Bodtmann e.g. Co. 1, lines 54-56).

Regarding claims 4, 16, Gabato and Bodtmann disclose everything as discussed above in claim 1. Further, Gabato makes its obvious that an additional ROM is required to calculate the square-root or logarithmically ($10 \log$) processing (See Gabato e.g. Co. 1, Lines 41-42) and / or a function block which calculates $f(x) = 20 \log(x)$ to obtain values in dB (See Gabato e.g. Co. 2, Lines 55-58). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Gabato to provide a method and / or an apparatus for measuring the RSSI and logarithmically processing was accomplished by a function block $f(x) = 20 \log(x)$ to obtain values in dB in-phase (**I**) and quadrature (**Q**) signal components before determining / after summing first and second absolute values / magnitudes in a less complex calculation (See e.g. Gabato e.g. Co. 1, Line 65- Co. 2, Line 2).

7. Claims 7, 13, 20-21, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato (U.S. Patent 5,603,112) in view of Haartsen (U.S. Patent 6,081,697) further in view of Bodtmann (U.S. Patent 4,028,641).

With respect to claim 7, 13, 20, 25, Gabato discloses a prior art (See Fig. 2) which teaches a method of determining radio device / a received signal strength indicator (RSSI) signal from an in-phase (**I**) signal component and a quadrature (**Q**) signal component (See Gabato e.g. **I**, **Q**, 201, 203, 205 of Fig. 2) that are inherently formed low intermediate frequency (IF) signal that represents a received radio frequency signal, first determines an absolute value from in-phase (**I**) signal component (See Gabato e.g. 201 of fig. 2); and second determines an absolute value from quadrature (**Q**) signal component (See Gabato e.g. 203, of fig. 1); and summing the absolute values (See 205 of fig.1, Co. 1, Lines 23-38). Further, With respect to Fig. 3, Gabato discloses that the determined absolute value in-phase (**I**) signal component and determined an absolute value of quadrature (**Q**) signal component compared and added / summed after to output absolute value of (RSSI) (See Gabato e.g. Co. 2, Lines 45-59 & fig.3). However, Gabato did not explicitly teach the radio device comprising: an antenna for receiving a radio frequency

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signal; a quadrature down converter for producing a low intermediate frequency in-phase signal component and a low intermediate frequency quadrature signal component from radio frequency signal. In an analogous field of endeavor, Haartsen teaches a known conventional radio receiver architecture which shows an antenna (See 205 of Fig. 2) for receiving a radio frequency signal; a quadrature down converter for producing a low intermediate frequency in-phase signal component (See Haartsen e.g. 270, 260, 230, 240, 250 of Fig. 2) and a low intermediate frequency quadrature signal component (See Haartsen e.g. 270, 260, 280, 290, 295 of Fig. 2) from radio frequency signal (See Haartsen e.g. Co. 5, Lines 4-35). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching of Haartsen to Gabato to provide a more compact single integrating circuit which as many as functions as possible to reduce the cost and reduce the power consumption and increase reliability as suggested by Haartsen (See Haartsen e.g. Co. 1, Lines 21-30). Both, Gabato and Haartsen fail teaching the (or limited) in-phase signal component and the (or limited) quadrature signal component contribute to the sum used to form the RSSI indication in equal proportion. In an analogous field of endeavor, Bodtmann teaches that the (or limited) in-phase signal component and the (or limited) quadrature signal component contribute to the sum in equal proportion (See Bodtmann e.g. Co. 1, lines 54-56). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provide above teaching of Bodtmann to Gabato and haartsen to provide a method or system or configuration for eliminating even order nonlinearities wherein carriers are added which differ in phase from quadrature from the modulating carrier signal by equal and opposite amounts as suggested (See Bodtmann e.g. Co. 1, lines 54-56).

Regarding claim 21, it is obvious that a first logarithmic signal former for determining a first logarithmic signal from the in-phase signal (See Gabato e.g. I, Q, 201, 203, 205 of Fig. 2) component and a second logarithmic signal (See Gabato e.g. Co. 2, Lines 55-58) former for determining a second logarithmic signal (See Gabato e.g. Co. 2, Lines 55-58) from the quadrature signal component (See Gabato e.g. I, Q, 201, 203, 205 of Fig. 2), the first absolute signal being the first logarithmic signal and the second absolute signal being the second logarithmic signal (See Gabato e.g. Co. 2, Lines 55-58).

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8. Claims 5, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Bodtmann further in view of Yoshizawa (U.S. Patent 6,311,049 B1).

Regarding claim 5, Gabato and Bodtmann disclose everything as discussed above in the rejected claims 1, 15. However, Gabato and Bodtmann did not teach received signal strength indicator signal is further determined by low pass filtering. In an analogous field of endeavor, Yoshizawa clearly teaches received signal strength indicator signal is further determined by low pass filtering (See 113-114, RSSI output of Fig. 1). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Yoshizawa to Gabato and Bodtmann provided summed signal is smoothed by a low-pass filter as suggested by Yoshizawa (See Co. 2, Lines 12-13).

Regarding claim 17, it is obvious that logarithmically processing comprises multistage limiting of the in-phase and quadrature signal components, and summing (See Gabato e.g. Co. 1, Lines 21-29, Figs. 1-5) the multistage limited in-phase and quadrature signal components (See Yoshizawa e.g. Co. 1, Line 65, Co. 3, Lines 53-58).

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Haartsen , Bodtmann and further in view of Yoshizawa (U.S. Patent 6,311,049 B1).

Regarding claim 22, Gabato, Haartsen, Bodtmann disclose everything as discussed above in rejected claims 7, 13, 20, 25. However, Gabato, Haartsen, Bodtmann do not teach it is obvious that logarithmically processing comprises respective multistage limiters and respective adders for adding signals produced by the multistage limiters. . In an analogous field of endeavor, Yoshizawa clearly teaches logarithmically processing comprises respective multistage limiters and respective adders for adding signals produced by said multistage limiters (See Yoshizawa e.g. dB, limiter 111, RSSI, adder 113, Co. 1, Line 65 - Co. 2, Line 14, 111, 113, 114, RSSI of Figs. 1, 3). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Yoshizawa to Gabato, Haartsen, Bodtmann to provide a multistage limiter and an adder for wave-shaping the output signal, thereby compensating for the received signal level to obtain an accurate RSSI output signal as suggested by (See Yoshizawa e.g. Co. 2, Lines 50-51, Co. 3, Lines 61-62) components, and

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summing (See Gabato e.g. Co. 1, Lines 21-29, Figs. 1-5) the multistage limited in-phase and quadrature signal components (See Yoshizawa e.g. Co. 1, Line 65, Co. 3, Lines 53-58)

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Bodtmann and further in view of Chamber (U.S. Patent 5,901,347).

Regarding claim 6, Gabato and Bodtmann disclose everything as discussed above in the rejected claims 1, 15. However, Gabato and Bodtmann do not teach the low intermediate frequency (IF) signal is a zero intermediate frequency (IF) signal. In an analogous field of endeavor, Chamber teaches the low intermediate frequency (IF) signal is a zero intermediate frequency (IF) signal (See e.g. Co. 1, Lines 14-27). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Chamber to Gabato and Bodtmann to provide a low-pass filters which reject unwanted signal frequencies and can be integrated on-chip with other components of the receiver to reduce the size and cost of the receiver and the radio as suggested by Chamber (See e.g. Co. 1, Lines 25-30).

11. Claims 10, 14, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Haartsen Bodtmann and further in view of Yoshizawa (U.S. Patent 6,311,049 B1).

Regarding claims 10, 14, 23, Gabato, Haartsen and Bodtmann disclose everything as discussed above in the rejected claims 7, 13, 20, 25. However, Gabato, Haartsen and Bodtmann do not explicitly teach received signal strength indicator signal is further determined by low pass filtering. In an analogous field of endeavor, Yoshizawa clearly teaches received signal strength indicator signal is further determined by low pass filtering (See e.g. 113-114, RSSI output of Fig. 1). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Yoshizawa to Gabato, Haartsen and Bodtmann provided summed signal is smoothed by a low-pass filter as suggested by Yoshizawa (See e.g. Co. 2, Lines 12-13).

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12. Claims 11, 19, 24, 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Haartsen Bodtmann and further in view of Chamber (U.S. Patent 5,901,347).

Regarding claims 11, 19, 24, 26 Gabato, Haartsen and Bodtmann disclose everything as discussed above in claims 7, 13, 20, 25. However, Gabato and Haartsen are silent the low intermediate frequency (IF) signal is a zero intermediate frequency (IF) signal. In an analogous field of endeavor, Chamber teaches the low intermediate frequency (IF) signal is a zero intermediate frequency (IF) signal (See Chamber e.g. Co. 1, Lines 14-27). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Chamber to Gabato, Haartsen and Bodtmann to provided a low-pass filters which reject unwanted signal frequencies and can be integrated on-chip with other components of the receiver to reduce the size and cost of the receiver and the radio as suggested by (See Chamber e.g. Co. 1, Lines 25-30).

13. Claims 12, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabato, Haartsen Bodtmann and further in view of Yoshizawa (U.S. Patent 6,311,049 B1).

Regarding claims 12, 18, Gabato, Haartsen and Bodtmann disclose everything as discussed above in the rejected claims 7, 13, 20, 25. However, Gabato, Haartsen and Bodtmann are silent the received signal strength indicator signal is further determined by low pass filtering. In an analogous field of endeavor Yoshizawa clearly teaches received signal strength indicator signal is further determined by low pass filtering (See e.g. 113-114, RSSI output of Fig. 1). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to provided above teaching of Yoshizawa to Gabato, Haartsen and Bodtmann to provided summed signal is smoothed by a low-pass filter as suggested by (See Yoshizawa e.g. Co. 2, Lines 12-13).

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Smith, (U.S. 3,617,717).

b) Honkisz (U.S. 5,787,128).


Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Eng, George** can be reached @ (571) 272-3984. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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